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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,435	11/13/2001	Markku Henriksson	796.415USW1	3030

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EXAMINER	
SAMS, MATTHEW C	
ART UNIT	**PAPER NUMBER**
2643	

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/008,435	HENRIKSSON, MARKKU	
	Examiner	Art Unit	
	Matthew C. Sams	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to Amendment filed on 1/27/2005.

Drawings

2. The drawings are objected to because the arrows in Fig. 7 and 8 referring to the connection for "Receiver 1" are pointed in the wrong direction. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 12 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Schwartz (US-5,883,882).

Regarding claim 12, Schwartz teaches a method of testing a radio transceiver in a system where the transmission signal pass band (Fig. 4A [61]), limited by the transmission branch filter of a duplex filter (Col. 14 lines 24-27) and the reception signal pass band (Fig. 4A [62]), limited by the reception branch filter (Col. 14 lines 24-27), are adjacent so that the frequency response curves of the filters partially overlap at the stop band between the pass bands (Fig. 4B [64]). Schwartz teaches the arrangement of a test loop between the transmission branch and the reception branch including a transmission coupling (Fig. 7C [160]), a band pass filter (Fig. 7C [156]), a receiver coupling (Fig. 7C [154]), the test loop having essentially less attenuation on the test frequency than the duplex filter and thus a test signal proceeds via the test loop from the transmitter to the receiver. (Col. 2 line 66 through Col. 3 line 22, Col. 10 lines 48-57 and Fig. 7C)

Schwartz inherently teaches the tuning the transmitter's transmission frequency away from the transmission signal pass band to a test frequency that falls into the stop band of the transmission branch filter frequency response curve and the reception branch filter frequency response curve and tuning the receiver reception frequency to the test frequency (Col. 5 line 17 through Col. 6 line 4), transmitting the test signal, receiving the test signal which has been attenuated while passing through the test loop. (Col. 2 line 66 through Col. 3 line 22, Fig. 4A and Fig. 4B)

Regarding claim 23, the limitations of claim 23 are rejected as the same reason set forth above in claim 12.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 13 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Nousiainen et al. (US-5,754,560 hereafter, Nousiainen).

Regarding claim 13, Schwartz teaches a method of testing a radio transceiver in a system where the transmission signal pass band (Fig. 4A [61]), limited by the transmission branch filter of a duplex filter (Col. 14 lines 24-27) and

the reception signal pass band (Fig. 4A [62]), limited by the reception branch filter (Col. 14 lines 24-27), are adjacent so that the frequency response curves of the filters partially overlap at the stop band between the pass bands (Fig. 4B [64]). Schwartz teaches the arrangement of a test loop between the transmission branch and the reception branch including a transmission coupling (Fig. 7C [160]), a band pass filter (Fig. 7C [156]), a receiver coupling (Fig. 7C [154]), the test loop having essentially less attenuation on the test frequency than the duplex filter and thus a test signal proceeds via the test loop from the transmitter to the receiver. (Col. 2 line 66 through Col. 3 line 22, Col. 10 lines 48-57 and Fig. 7C) Schwartz teaches the tuning the transmitter's transmission frequency away from the transmission signal pass band to a test frequency that falls into the stop band of the transmission branch filter frequency response curve and the reception branch filter frequency response curve and tuning the receiver reception frequency to the test frequency, transmitting the test signal, receiving the test signal which has been attenuated while passing through the test loop. (Col. 2 line 66 through Col. 3 line 22, Col. 5 line 17 through Col. 6 line 4, Fig. 4A and Fig. 4B)

Schwartz teaches a switch that is connected between the antenna and the duplexer to limit RF leakage from being broadcasted when the testing is occurring (Col. 13 line 67 through Col. 14 line 4), but differs from the claimed invention by not mentioning a switch connected between the TX coupling and RX coupling. However, Nousiainen teaches a switch (Fig. 3 [60]) connected between the transmitters and receivers, which bypass the duplex filter (Fig. 3

[40]). (Fig. 3 [10 & 69] and Col. 4 line 57 through Col. 5 line 11) The bypass obviously has less attenuation for a signal than if the signal was being filtered. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the switch connecting the transmitter and receiver of Nousiainen into the testing system of Schwartz. One of ordinary skill in the art would have been motivated to do this since turning a switch on and off enables control of when testing should occur and the selection of which transmitter/receiver should be tested. (Table 1 and Col. 3 lines 37-49)

Regarding claim 24, the limitations of claim 24 are rejected as the same reason set forth above in claim 13.

7. Claims 14, 16-19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Eriksson et al. (US-5,521,904 hereafter, Eriksson).

Regarding claim 14, Schwartz teaches a method for testing a unit comprising several radio transceivers in a system by transmitting a single transmission frequency and dividing the signal to be received by numerous receivers (Col. 11 line 63 through Col. 12 line 40, Fig. 9 and Fig. 10), the pass band for the system transmission signal frequencies limited by the transmission branch filter of a duplex filter (Col. 14 lines 24-27) and the reception signal pass band (Fig. 4A [62]), limited by the reception branch filter (Col. 14 lines 24-27), are adjacent so that the frequency response curves of the filters partially overlap at the stop band between the pass bands (Fig. 4B [64]). Schwartz teaches the arrangement of a test loop between the transmission branch and the reception

branch including a transmission coupling (Fig. 7C [160]), a band pass filter (Fig. 7C [156]), a receiver coupling (Fig. 7C [154]), the test loop having essentially less attenuation on the test frequency than the duplex filter and thus a test signal proceeds via the test loop from the transmitter to the receiver. (Col. 2 line 66 through Col. 3 line 22, Col. 10 lines 48-57 and Fig. 7C) Schwartz teaches the tuning the transmitter's transmission frequency away from the transmission signal pass band to a test frequency that falls into the stop band of the transmission branch filter frequency response curve and the reception branch filter frequency response curve and tuning the receiver reception frequency to the test frequency, transmitting the test signal, receiving the test signal which has been attenuated while passing through the test loop. (Col. 2 line 66 through Col. 3 line 22, Col. 5 line 17 through Col. 6 line 4, Fig. 4A and Fig. 4B)

Schwartz differs from the claimed invention by not mentioning several transmitters sending transmission signals that are combined into a summed signal by a combiner. However, Eriksson teaches a method and apparatus for testing a base station, which contains a plurality of transceivers (Fig. 2 [10]), where the transceivers are coupled together by a combiner (Fig. 2 [13]) to transmit different frequencies through a single antenna (Fig. 2 [11]). (Col. 3 lines 44-54 and Col. 4 lines 1-14) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the combining of a plurality of transceivers of Eriksson into the testing system of Schwartz. One of ordinary skill in the art would have been motivated to do this since it allows the

testing of multiple transceivers in a system by transmitting different test frequencies to the receivers in the system. (Col. 4 lines 1-13)

Regarding claim 16, Schwartz teaches a test signal that is transmitted by a single transmitter and is received by each receiver. Schwartz teaches of monitoring the test signal through the components and if the test signal changes, it is because a component failed. (Col. 3 lines 11-30) It is well known in the art that if multiple copies of the same transmission are sent to identical receivers and one receiver has a different result, it is defective.

Regarding claim 17, the combination of Schwartz in view of Eriksson teaches a method for testing a unit comprising several radio transceivers in a system by transmitting a single transmission frequency and dividing the signal to be received by numerous receivers (Schwartz Col. 11 line 63 through Col. 12 line 40, Fig. 9 and Fig. 10) and a method that includes being able to set up a test loop through any transceiver for any frequency. (Eriksson Col. 4 lines 10-14) It is well known in the art that troubleshooting defective components becomes a trial and error task if identical copies of the components are all available to be tested in the same system.

Regarding claim 18, the limitations of claim 18 are rejected as the same reason set forth above in claim 17.

Regarding claim 19, Schwartz teaches a method of testing a radio transceiver in a system where the transmission signal pass band (Fig. 4A [61]), limited by the transmission branch filter of a duplex filter (Col. 14 lines 24-27) and the reception signal pass band (Fig. 4A [62]), limited by the reception branch filter

(Col. 14 lines 24-27), are adjacent so that the frequency response curves of the filters partially overlap at the stop band between the pass bands (Fig. 4B [64]). Schwartz teaches the arrangement of a test loop between the transmission branch and the reception branch including a transmission coupling (Fig. 7C [160]), a band pass filter (Fig. 7C [156]), a receiver coupling (Fig. 7C [154]), the test loop having essentially less attenuation on the test frequency than the duplex filter and thus a test signal proceeds via the test loop from the transmitter to the receiver. (Col. 2 line 66 through Col. 3 line 22, Col. 10 lines 48-57 and Fig. 7C) Schwartz teaches the tuning the transmitter's transmission frequency away from the transmission signal pass band to a test frequency that falls into the stop band of the transmission branch filter frequency response curve and the reception branch filter frequency response curve and tuning the receiver reception frequency to the test frequency, transmitting the test signal, receiving the test signal which has been attenuated while passing through the test loop. (Col. 2 line 66 through Col. 3 line 22, Col. 5 line 17 through Col. 6 line 4, Fig. 4A and Fig. 4B)

Schwartz differs from the claimed invention by not mentioning a test control for tuning the transmitter and the receiver on the same test frequency. Schwartz does teach the creation of the test signal in the stop band region and monitoring the system for errors. (Col. 5 line 17 through Col. 6 line 41) However, Eriksson teaches a control signal that defines the setup procedure. (Col. 4 lines 10-14) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the control signal of

Eriksson into the testing system of Schwartz. One of ordinary skill in the art would have been motivated to do this since having a single control signal can prepare many transceivers for testing. (Col. 4 lines 10-14)

Regarding claim 21, Schwartz teaches a test frequency that is outside the range of the transmission signal pass band of the duplex filter. (Fig. 4A, Fig. 4B [64] and Col. 5 lines 17-54)

Regarding claim 22, Schwartz teaches a test filter that is integrated within the duplex filter, which includes the cabling between the transmitter and the duplex filter. (Col. 3 lines 2-22)

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Eriksson as applied to claim 14 above, and further in view of Nousiainen.

Regarding claim 15, the combination of Schwartz in view of Eriksson teaches the limitations of claim 14, but differ from the claimed invention by not mentioning a switch in the test loop that controls when the test signal proceeds through the test loop and has less attenuation than the duplex filter. However, Nousiainen teaches a switch (Fig. 3 [60]) connected between the transmitters and receivers, which bypass the duplex filter (Fig. 3 [40]). (Fig. 3 [10 & 69] and Col. 4 line 57 through Col. 5 line 11) The bypass obviously has less attenuation for a signal than if the signal was being filtered. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the switch connecting the transmitter and receiver of Nousiainen into the testing system for multiple transceivers of Schwartz in view of Eriksson. One of ordinary

skill in the art would have been motivated to do this since turning a switch on and off enables control of when testing should occur and the selection of which transmitter/receiver should be tested. (Table 1 and Col. 3 lines 37-49)

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schwartz in view of Nousiainen as applied to claim 13 above, and further in view of Eriksson.

Regarding claim 20, the combination of Schwartz in view of Nousiainen teaches the limitations of claim 13, but differ from the claimed invention by not mentioning a test control for tuning the transmitter and the receiver on the same test frequency. However, Eriksson teaches a control signal that defines the setup procedure. (Col. 4 lines 10-14) At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the control signal of Eriksson into the testing system of Schwartz in view of Nousiainen. One of ordinary skill in the art would have been motivated to do this since having a single control signal can prepare many transceivers for testing. (Col. 4 lines 10-14)

Response to Arguments

10. Applicant's arguments with respect to claims 12-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (571)272-8099. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571)272-7499. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS
4/27/2005

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